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ABSTRACT

This paper examines issues in designing post-school follow-up studies in special education. The examination focuses on survey research techniques, which are widely used in the investigation of post-school adjustment of former students with handicaps. In special education, survey research studies are used commonly to address many important questions. For example, such studies are used to estimate the incidence and prevalence of handicapping conditions, measure attitudes, collect data on personnel training needs, develop information from key informants on service and policy issues, describe the number and characteristics of students in service programs, and assess the post-school adjustment of former students. The following issues are addressed: (1) identification of needed information; (2) data collection methods; (3) questionnaire construction (including wording, format, pretesting, and establishment of reliability and validity); (4) sample design; (5) contacting the sample; (6) response rates; (7) the survey report; and (8) tracking procedures. Sound procedures pertinent to designing and implementing follow-up systems for special education are discussed. By applying acceptable practices, the results of survey research studies will be: easier to interpret into an integrated knowledge base, more easily assimilated into decisions that seek to improve practices, and more readily generalized to other populations and settings. A 42-item list of references, one table, and one flowchart illustrating the survey research process are included. (Author/TJH)

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Issues and Guidelines in Designing Follow-up Systems for Special Education Service Programs

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Project Report Number 89-2

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Issues and Guidelines in Designing Follow-up Systems for Special Education Service Programs

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Abstract

This paper examines issues in designing post-school follow-up studies in special education. The examination focuses on survey research techniques, which are widely used in the investigation of the post-school adjustment of former students with handicaps. The issues addressed are: (a) identifying needed information, (b) mode of data collection, (c) questionnaire construction (wording and format, pretesting, reliability and validity), (d) sample design, (e) contacting the sample, (f) response rates, (g) survey report, and (h) tracking procedures. Sound procedures in designing and implementing follow-up systems for special education programs are discussed.

Issues and Guidelines in Designing Follow-up Systems for Special Education Service Programs

Interest in the transition of students with disabilities from public high school programs to the post-school environment has increased in the recent past. The importance of this issue has grown during the past decade as a result of the increased numbers of youth and young adults in the U.S. population, and the development of new school programs for students with handicaps. Particular attention has been given to the transition of students with moderate and severe handicaps, who typically were not served extensively in traditional public schools before the enactment of Public Law 94-142 in 1975.

In order to be effective, school programs and rehabilitation services for students with handicaps need to document the post-school outcomes for students who received special education services, and subsequently to use this information to make programming and planning decisions to improve transition services (Bruininks, Lewis, & Thurlow, 1988; Thurlow, Bruininks, & Lange, 1989). For example, data on students from different types of programs (e.g., integrated vs. segregated, vocational vs. academic) should be correlated with post-school outcomes (Edgar, 1988). Assessing the post-school status of former students in special education has several important implications: (1) influencing and changing public policies about programs and their populations (Schroedel, 1984); (2) identifying needed post-school services and problems in coordinating assistance for former students and their families; (3) documenting continuing needs of former students for use in making decisions about reforms in school curricula and practices; and (4) evaluating the cost effectiveness of programs by conducting cost-benefit or cost-effectiveness analyses for the programs and society (Bruininks et al., 1988). These implications all move toward improvement and modification of special education programs, when appropriate.

The goal of collecting information about former students in special education requires that follow-up studies be conducted of these students. Recently, several follow-up studies have investigated information about outcomes for students with different handicaps who received services provided by

local public schools (Bruininks, Thurlow, Lewis, & Larson, 1988; Edgar, 1987; Fardig, Algozzine, Schwartz, Hensel, & Westling, 1985; Hasazi, Gordon, & Roe, 1985; Schalock, Wolzen, Ross, Elliott, Werbel, & Peterson, 1986; Thurlow, Bruininks, & Lange, 1989; Thurlow, Bruininks, Wolman, & Steffens, 1989; Wehman, Kregel & Seyfarth, 1985; Zigmond & Thornton, 1985). Most of this information is the result of efforts by special projects and university-based researchers, with special funding to support evaluation and follow-up components. It is important, however, that public school programs be able to independently document and evaluate in a systematic way the outcomes of their programs for students with disabilities. This goal can be attained by developing follow-up systems that can be used by school buildings and districts (Thurlow, Bruininks, & Lange, 1989).

Follow-up studies on the post-school adjustment of former students with handicaps generally employ a survey research methodology, a form of data collection frequently used in the social sciences. In special education, survey research studies have been used to address many important questions. Such studies, for example, have been used to estimate the incidence and prevalence of handicapping conditions, measure attitudes toward practices such as mainstreaming, collect data on personnel training needs, develop information from key informants (parents, teachers, etc.) on service needs and policy issues, describe the number and characteristics of students in service programs, and assess the post-school adjustment of former students. Despite the widespread use of survey research methodology in special education and related service fields, there is limited attention to sound procedures in many studies, and little discussion of these issues in the research literature concerned with special education.

This paper examines existing studies and discusses important issues in designing follow-up studies that employ survey research techniques. Also discussed are the implications of using sound procedures in designing and implementing follow-up systems for special education programs.

Conducting Survey Research in Special Education

Several steps must be followed in conducting survey research (Borg & Gall, 1983; Fowler, 1984). Presented in Figure 1 is a conceptual model of the several steps involved in conducting survey research studies, with each step representing a number of decisions that may enhance or hamper the accuracy

of the findings (Fowler, 1984). In addition to initial decisions, the survey research process requires the application of a variety of standards to insure reliable and valid study findings. The decisions and the standards to be applied in conducting a successful follow-up survey of persons with handicaps are in most cases similar to those involved in a survey of persons without handicaps. Some aspects of this process, however, are peculiar to special education populations.

Identifying Needed Information

Follow-up studies of former students with handicaps typically intend to investigate the adjustment of these persons to society. This adjustment may be reflected in several areas of life, including interpersonal relationships, employment, financial status, community participation, and many other areas (Bruininks, McGrew, Thurlow, & Lewis, 1988). Information collected prior to questionnaire construction, through needs assessment research from key informants, may help to determine which aspects of post-school adjustment should be investigated. In fact, needs assessment research frequently uses survey research procedures. For example, survey research carried out by Lange, Thurlow, and Bruininks (1988) revealed that professionals who work with youth and adults with handicaps believe that employment and vocational success are the most important types of information needed for follow-up evaluations of secondary instructional programs and for evaluating the cost-effectiveness of these programs. In most of the follow-up studies of former students with handicaps, the predominant measure of adjustment has been employment outcomes (Edgar, 1987; Fardig et al., 1985; Hasazi et al., 1985; Mithaug, Horiuchi, & Fanning, 1985; Schalock, Wolzen, Ross, Elliott, Werbel, & Peterson, 1986; Semmel, Cosden, & Konopak, 1985; Wehman et al., 1985; Zigmond & Thornton, 1985).

Since community adjustment is multifaceted, schools need to assess more than employment outcomes of former students (Bruininks & Thurlow, 1988; Edgar, 1988). Although the results of Lange, Thurlow, and Bruininks (1988) showed that professionals primarily are interested in the study of factors related to employment of youth with handicaps, other groups of persons (e.g., parents) may be interested in different aspects of post-school life for persons with handicaps, such as social networks and relationships, behavioral adjustment, or extent of community integration. Contrary to unidimensional

approaches to the adjustment of former students in special education, a multidimensional perspective of community adjustment and integration of youth with handicaps has been advocated recently by several researchers (Bruininks, McGrew et al., 1988; Halpern, Nave, Close, & Nelson, 1986).

Two important strategies involving key informants can be used to define the information needed in follow-up studies. One approach involves the application of structured group process methods (Moore, 1987). These methods provide strategies for soliciting and evaluating opinions of key informants. Nominal group procedures are useful to assess the judgments of participants through methods that maximize the participation of group members and systematically pool these judgments through structured rating methods (Delbecq, Van de Ven, & Gustafson, 1975).

The Delphi technique is another useful technique that can be used to identify areas of post-school adjustment. In this technique, questionnaires are sent to persons who are knowledgeable about a particular subject (e.g., school principals, project leaders, counselors). The goal of this approach is to obtain a consensus among the persons questioned about the topic of interest. This is obtained by sending questionnaires several times to the respondents and by gradually modifying them according to the respondents' input (Borg & Gall, 1983; Delbecq et al., 1975). For example, in one study using the Delphi technique, participants rated the desirability and feasibility of possible future trends in community services for persons with disabilities (Putnam & Bruininks, 1986). In another study, a two-iteration Delphi technique was used (McKinsie Senter & Houston, 1981). First, four groups of participants (professionals and non-professionals) were asked to rate the desirability of position statements about the future of teacher education. Then, in the second round, participants were asked to reconsider their previous answers based on the responses of other respondents in their group.

An additional approach in defining survey research questions involves a detailed analysis and synthesis of existing literature (Light & Pillemar, 1984) to identify areas consistently used in previous studies. Table 1 presents such a synthesis of outcomes in previous post-school studies. Inspection of this table, and similar analyses, provides the researcher with valuable information on the data used

in past research efforts. More sophisticated analyses, such as effect size and visual displays, could be used to assess the findings of previous studies (Light & Pillemar, 1984).

Mode of Data Collection

One of the most important decisions in designing a survey study is to choose the best method of data collection. Often, this decision will determine the rate of response of the subjects (Fowler, 1984). Three methods are widely used to collect information in survey research: mail questionnaires, telephone interviews, and face-to-face interviews. An additional alternative is to use a combination of methods (Fowler, 1984, van Houten & Hatry, 1987). Although each technique has certain advantages and disadvantages, the "best" method will vary depending on the topic studied, the objectives of the survey, the population being researched, and available resources (Dillman, 1978; Frey, 1983).

Comparison ratings of these three methods have been reported on several performance characteristics. Some of the characteristics analyzed by Dillman (1978), and Frey (1983) show that: (a) the most expensive method is usually the face-to-face interview, (b) response rates from the general public decrease and item nonresponses generally increase by using mail questionnaires, (c) socially desirable responses are more likely to occur in face-to-face interviews, and (d) the likelihood of avoiding unknown bias from refusals will be higher in face-to-face and in telephone interviews than in mail surveys.

One of the most important considerations in the selection of an appropriate method of data collection is the nature of the population to be studied (Dillman, 1978; Fowler, 1984; Frey, 1983). This is especially true in surveys of persons with disabilities. In an integrative review of surveys of adults with deafness, Schroedel (1984) reported wide variability in mean response rates in studies that used either mail or face-to-face surveys. Response rates of persons with deafness on mail surveys ranged from 25.5% to 75.8%, with an average response rate across studies of 49.0%, while response rates in face-to-face interview studies ranged from 38.1% to 100%, with an average response rate of 76.6%.

Is there an optimal survey method to be used with persons with handicaps? The answer to this question depends in part on who answers the survey - the person with handicaps, his/her parents, a

teacher, a caretaker, etc., and on the nature of the handicap. For example, a specific disadvantage of mail questionnaires is that persons with reading and writing difficulties are less likely to respond than they would be to a telephone survey or a face-to-face interview (Fowler, 1984; Sinclair & Johnson, 1989). On the other hand, persons with speech disabilities may be more reluctant to answer telephone interviews. The advantage of telephone and face-to-face interviews is that assistance can be provided to the respondent, which is beneficial to persons who need help completing the survey. In addition, many people with handicaps probably would want to talk with the interviewer for some time (Sinclair & Johnson, 1989). These concerns play a less important role when the respondents are individuals other than the persons with handicaps (e.g., parents, relatives, caretakers).

When planning the survey, it is important to consider the appropriateness of the survey methodology in relationship to the characteristics of respondents. Sigelman, Schoenrock, Winer, Spankel, Hromas, Martin, Budd, and Bensberg, (1981) reported results of four methodological studies of interview strategies involving persons with mental retardation. The results identified serious problems of acquiescence (i.e., the tendency to respond affirmatively to yes-no questions regardless of content), position responses (e.g., selecting the last item in a series), and other difficulties in interviewing persons with mental retardation. However, response rates and response reliability were quite high with the use of appropriate survey techniques. This is just a single example that emphasizes the importance of considering respondent characteristics in designing items and selecting procedures. Such considerations are equally important to consider when assessing parents, professionals and other respondent groups.

Questionnaire Construction

Principles guiding the construction of questionnaires for the general public should be rigorously applied when constructing questionnaires for persons with handicaps. Because of the special characteristics of the population with handicaps, additional considerations must be addressed.

Questionnaire wording and format. The format and the questions should be easy to follow for the interviewer (in telephone and face-to-face interviews), the respondent, and the data processor (van

Houten & Hatry, 1987). Of special interest here are considerations related to obtaining reliable and valid answers from the respondent, both via the questionnaire format or an interviewer.

Several guidelines and rules have been suggested for questionnaire construction. Some of these are designed to maximize reliability or to obtain a consistent measurement (Fowler, 1984), and others to increase the validity of the results. For example, van Houten and Hatry (1987) have suggested keeping the wording simple, making questions clear, unambiguous and one-dimensional, avoiding skipping patterns of questions, asking the least sensitive questions first, trying to minimize memory problems and mental and emotional effort, providing a consistent frame of reference, and avoiding questions about which the respondents may not be knowledgeable. Other suggestions include: (a) avoiding long questionnaires, long questions, psychologically-threatening questions, negative questions, and biased or leading questions, (b) making the questionnaire attractive, (c) providing brief and clear instructions, and (d) using examples (Borg & Gall, 1983). Worthen and Sanders (1987) list over 30 questions derived from criteria in the areas of question sequence, question wording, establishing and keeping rapport and eliciting cooperation, instructions, and technical quality.

These guidelines should be carefully followed when constructing questionnaires designed to survey the adjustment of persons with handicaps. Failing to do so may decrease the response rate, or the number of questions answered on returned questionnaires, and may give invalid results if questions are misinterpreted or misunderstood.

Several examples exist of the importance of these guidelines when surveying special populations. For instance, replies to questions by persons with handicaps (Sigelman et al., 1981; Wyngaarden, 1981), who may have difficulties understanding ambiguous terms or unclear questions, certainly will be influenced by the clearness and unambiguity of questions as well as the use of simple words. Questionnaires that are difficult to follow may increase the number of questions skipped and left unanswered. Constructing attractive questionnaires may encourage persons with handicaps to respond, as well as facilitate the answering process. Asking many questions that require recollection of past events may present a significant memory burden to persons with mild and moderate learning

disabilities. Another consideration is that parents of persons with handicaps may be particularly sensitive to questions about the handicapping conditions of their children and may interpret questions that are inappropriately worded in a psychologically threatening manner. Sigelman and her colleagues (1981) found that yes-no and pictorial choice questions increased the responses of persons with mental retardation, but decreased the validity of the results. In addition, these researchers suggested that although the use of examples can increase the responsiveness of individuals with mental retardation, these persons may have a tendency to give responses that echo back the items used as examples. They suggest using either-or questions in surveying persons with mental retardation, because high responsiveness together with relatively high reliability and validity can be obtained using this category of questions.

Pretesting the questionnaire. A questionnaire should be pretested before it is used in a study. Dillman (1978) suggests that questionnaires should be submitted to three groups of people for the pretest. The first group would include colleagues or trained professionals who understand the purpose of the study. The second group would consist of potential users of the data. The third pretest includes subjects drawn from the population to be surveyed. This procedure was followed in transition studies at the University of Minnesota (Bruininks & Thurlow, 1988; Sinclair & Johnson, 1989). In these studies of former students in special education, the follow-up interview was submitted to several groups for criticism of its content and readability. Some of these groups consisted of colleagues or trained professionals (university professors, research staff, and graduate students), and of potential users of the data (a task force of parents and care providers of adults with mental retardation, and special educators). Based on the suggestions made by these groups of persons, the interview was changed. Following these changes, a pilot study was conducted with a small sample of the population to be studied, in order to determine the length of the interview in an actual interview situation, the readability and clarity of the questions, and to verify the clarity and manageability of the procedures.

Reliability and validity of the instrument. Reliability is "the extent to which people in comparable situations will answer questions in similar ways" (Fowler, 1984, p. 84). Several of the rules already

mentioned for wording and formatting a questionnaire are designed to improve the reliability of an instrument. The use of unambiguous questions that can provide a consistent measure across subjects is particularly relevant.

Fowler (1984) defines validity as "the extent to which the answer given is a true measure and means what the researcher wants it to mean or expects it to mean" (p. 84). This author describes three factors that may contribute to low validity in an instrument: (1) respondents' lack of knowledge, (2) memory decay on questions that require recall of the past, and (3) social desirability. Some of the ways to increase the validity of a questionnaire are avoiding questions about which the respondents may not be knowledgeable, trying to minimize questions that require memory of past events, using self-administered questions, and promising confidentiality and anonymity to respondents. A specific phenomenon that decreases the validity of the results is acquiescence, or the tendency to answer affirmatively to yes-no questions regardless of their content. Sigelman et al. (1981) found that persons with lower IQ (e.g., persons with severe retardation) were more likely to respond affirmatively to yes-no questions than persons with higher IQs (e.g., persons with mild disabilities).

Assessing reliability of instruments often is problematic in survey research studies. For example, in a national census study of private residential facilities (Bruininks, Hauber & Kudla, 1980), it was necessary to summarize the number of persons in facilities by level of mental retardation. To increase the reliability of this item, a special study was conducted of a simple procedure for classifying persons by level of mental retardation. This simple procedure produced a correlation of .80 with standardized IQs, and solved a very troublesome source of error in the study procedures.

Finally, an essential consideration in obtaining reliable and valid information is to insure adequate training of data collectors to obtain true responses, and establishment of their consistency in deriving comparable results from the same respondents (i.e., interrater agreement). When the population to be studied is composed of persons with moderate or severe disabilities, special strategies have to be developed in order to conduct the interviews and obtain valid results. For example, Wyngaarden (1981) used role-playing and simulation sessions to train interviewers to test persons with

mental retardation. Mathematica Policy Research (1982) has developed a useful videotape to train interviewers; it contains both information on interview techniques and samples of interviews.

Sample Design

In most cases, it is not necessary to collect survey information from every member of the group of interest. This is more often the case when the group of interest has many members, such as all graduates of special education programs in a large urban school district over a five-year period. In cases where it has been decided that only a part of a group needs to be surveyed in order to obtain accurate and reliable information that represents the entire group, a sampling plan needs to be developed. The sample of potential respondents for a survey must be identified in a way that will insure comparability to the entire group.

Worthen and Sanders (1987) define "sample design" as the plan by which a sample is to be drawn, distinguishing this term from "sample selection," the actual drawing and listing of sample members. Worthen and Sanders present three methods of sampling as the most common approaches in educational evaluation: (1) Haphazard - members drawn on the basis of accessibility, (2) Judgment - members drawn on the basis of expert judgment or best guesses about those who will best reflect the characteristics of the entire group, and (3) Probability - members drawn on the basis of the probability with which they occur in the entire group.

Random sampling procedures, a subset of probability sampling, are probably the best known and most frequently used with a fairly homogeneous population. In some situations, random sampling is applied within certain pre-defined subgroups of the entire group. For example, if one were to want to draw a sample from all students with mild handicaps in a school district, one might first identify all students considered to have learning disabilities, all students considered to have emotional disabilities, all students considered to have speech/language disabilities, and all students considered to have mild mental retardation. If the four groups are approximately equal in number, a sampling plan would be to randomly select the same number from each group. If the four groups differ significantly in size, a

sampling plan might involve first determining the percentage of the total group in each subgroup, then randomly selecting numbers that reflect the sample proportions of the desired sample size.

Random sampling can be accomplished by using a random numbers table, putting all names in a hat, selecting every third name (or whatever interval is needed to end up with the desired number), or by using a computer program. The key to appropriate random sampling lies in the initial identification of the group of interest. The initial identification must be accurate. Thus, if the desire was to sample all students in special education who were in the class of 1988, it would be inappropriate to select from among those names of special education students on the graduation roster, for it is known that significant numbers of students in special education drop out of school without graduating (Wolman, Bruininks, & Thurlow, in press).

Contacting the Sample

Initial contacts of the sample typically occur by mail, although this is not necessary. Generally, however, it is more feasible, particularly if a larger sample size has been selected. Even for mailed questionnaires, the use of pre-letters that indicate a questionnaire is coming has been found to increase response rates without significantly increasing costs (Colton & Kane, 1989). It is important to determine the best source of initial contact. In mail surveys, for example, an assessment of potential reactions of respondents should be considered. In some cases, a judgment might be made that the principal of the high school attended by former students would be best, while in others it might be decided that contact by a former teacher might be best. Other alternatives for school-based follow-ups include a superintendent or other higher level administrator or a representative of the graduating class (i.e., another former student).

Plans also need to be made for a follow-up strategy. Additional letters, postcard reminders, and telephone calls are among the alternatives for follow-up to initial contacts. Anyone planning to conduct a follow-up study of former students in special education programs must be prepared for significant follow-up efforts (assuming that no ongoing tracking system is in place). In a recent mail follow-up study of over 1500 students, Bruininks, Thurlow, Lewis, and Larson (1988) obtained responses from

71.0% of individuals who had been in a college track program in high school, 63.5% of individuals who had been in a vocational track program, and 66.0% of individuals who had been in special education. Initial responses rates for these groups after the first contact letter were approximately 40%, 30%, and 20%, respectively. The first contact was a cover letter from school principals. After approximately three weeks, a reminder post card was sent to all nonrespondents. A second copy of the questionnaire and another letter were sent about six weeks after the initial contact. At this point, extra efforts were directed toward the special education group, which was of primary interest in the study. Approximately 12 weeks after initial contacts, a new letter from one of each of the schools' special education teachers was sent to these former students, along with a copy of the questionnaire. Next, telephone contacts were made to the students in the special education group (and, to a random sample of individuals in the vocational and college groups). At this point, teachers were employed to make some contacts, as were student networks (e.g., student still in school would contact student from an earlier class). Clearly, considerable effort had to be exerted. The amount of effort required is multiplied when certain types of former students are the target sample (e.g., individuals with emotional disabilities, dropouts). Successful efforts to obtain information from reluctant responders is considered necessary to accurate estimation of a population mean (Green, 1989).

Initial contact via telephone is more feasible when the target sample size is not too large for the available personnel to handle. Telephoning requires a considerable time investment (which for some groups may not be any more than the time required for multiple attempts to contact by mail). Personal contacts also provide opportunities for clarification (e.g., about the purpose of the survey), probing (e.g., how to get in contact with a former student who has moved), and effective contact (e.g., if target sample includes individuals with reading difficulties, a mailed contact may be ineffective).

Response Rates

In conducting survey research, a major cause of bias in the results is the failure to collect data from a sufficiently high proportion of the individuals selected for inclusion in the study (Dillman, 1978; Fowler, 1984; Williams & MacDonald, 1986). Response rates are calculated to reflect the extent to which

this bias may exist. The response rate statistic generally is calculated by dividing the number of people interviewed or responding by the total number of people originally sampled. An alternative procedure is to consider in the original sample of potential respondents only those subjects who were found and with whom contact was made (Dillman, 1978). Based on these two approaches, it can be deduced that three groups of subjects should be identified: the total number of subjects meeting the selection criteria, the total number of subjects found, and the total number of subjects who responded to the survey. In this way, both types of response rates can be reported: (1) the number of respondents out of the number of located potential subjects, and (2) the number of respondents out of the total number of potential subjects.

The effect of nonresponse on survey estimates depends on the percentage of nonrespondents and the extent to which those nonrespondents are biased. Fowler (1984) considers the standard for a minimum acceptable response rate to be around 75%. Borg and Gall (1983) propose that if more than 20% of the respondents are missing, it is very likely that the results of the study may be altered. Thus, it is suggested that a portion of the nonresponding group be checked to determine whether they constitute a biased sampling. If a significant number of contacted persons decline to participate, it is important to know whether these persons differ from those who responded (Dillman, 1978). This information can be obtained by comparing a common set of data on the subjects who responded and subjects who did not respond. Bruininks and Thurlow (1988) suggest that for schools, a logical choice of data on which to make comparisons between respondents and nonrespondents is school record data, such as graduation rates, grade point averages, and absenteeism rates. For groups with more severe handicaps, the strategy may consider test scores at exit from school. If differences are found on these measures, however, it does not mean that the study necessarily is invalid. An alternative possibility is to statistically correct for initial differences or at least to evaluate findings in relationship to initial sample characteristics.

What is considered to be an acceptable response rate in samples of persons with handicaps? Schroedel (1984) reviewed several follow-up surveys of persons with different types of disabilities. These

studies had response rates ranging from 27% to over 70%. Bruininks and Thurlow (1988) suggested that a reasonable response rate in special education should be at least 50%. Table 1 is a summary of several follow-up studies of persons with different degrees of handicaps. One of the variables summarized in this table is the response rate in each study (if reported, either explicitly or implicitly). As this table reveals, most reviewed studies did report response rates, with rates ranging from 57% to 91%.

Several factors may influence the response rates of the selected samples. These are: mode of data collection (Fowler, 1984), wording and format of the questionnaire (Borg & Gall, 1983; Fowler, 1984), interest in the topic investigated (Dillman, 1978), follow-up or contact techniques such as telegrams, telephone calls, and certified mailings (Borg & Gall, 1983), and use of monetary payment or other incentives.

Some variables that influence response rates are exclusive to samples of persons with handicapping conditions. One of the most important variables seems to be the nature and/or severity of the handicapping condition of the respondents. For example, in a recent study (Thurlow, Bruininks, & Lange, 1989), differences were found in response rates for individuals with moderate and severe mental retardation compared to those with mild retardation. Of an initial sample of former students with moderate and severe mental retardation, approximately 90 percent were found and over 90 percent agreed to participate (i.e., 80% of the initial sample). Of an initial sample of former students with mild degrees of retardation, 72 percent were found and of these 73 percent agreed to participate (i.e., about 53% of the initial sample). A similar trend is seen in some of the studies reported in Table 1. In other words, several studies that followed former students with mild disabilities obtained lower response rates (e.g., 57%, 59%, 65.3%, 66%) than some investigations that surveyed persons with moderate, severe, and profound disabilities (e.g., 71%, 81%, 86%). However, an opposite picture is described by Sigelman et al. (1981), who found that for respondents with mental retardation, responsiveness was positively associated with IQ. In addition, it has been found that students with severe emotional disabilities had significantly lower response rates than students with mild emotional disabilities (Thurlow, Larson, &

Bruininks, 1989). Thus, the specific handicapping conditions may interact with the level of severity of the handicap in influencing response rates in surveys. Whether persons with mild degrees of disabilities are more "defensive" (Williams & McDonald, 1986) than persons with more extensive degrees of handicaps is a question that should be investigated. Several aspects, such as having different reference or comparison groups (i.e., comparing themselves with persons without handicaps and not with persons with handicaps), having a less salient handicap, and being relatively better adjusted to society, may be some of the reasons for not wanting to recall an association with special education services. When comparing response rates of subjects with handicaps, it is important to take into account who the respondents were in each study, and whether they were the persons with handicaps or other persons related to the subjects (e.g., parents, relatives).

In the post-school follow-up of students in special education, another variable influencing response rates is whether the sample is contacted after a few years or after many years since leaving school. As the years pass, records can be lost, persons may be more difficult to find (e.g., changing addresses, moving to other towns, deceased), and refusals to cooperate may increase. The most effective way to obtain high response rates for ex-students in special education is to have an established follow-up system, with adequate procedures for tracking students as they leave school (Bruininks & Thurlow, 1988).

The Survey Report

Fowler (1984) describes two functions of a good methodological description: "To provide a good understanding of how well sample estimates are likely to describe the population from which the sample was drawn . . . . [and] to provide the procedural details needed to replicate a data collection effort and/or detect procedural differences between surveys that would affect comparability " (p. 141).

Information reported by researchers about data collection procedures varies from study to study. In some cases information that might be the cause of survey error (e.g., insufficient response rates, or lack of comparability between respondents and nonrespondents) is not provided to the readers. In addition to reporting a factual description of the data collection process (e.g., sampling procedures,

questionnaire design procedures, description of field procedures), Fowler (1984) suggests that other aspects of the survey study should be reported either in the study itself or in an appendix. These aspects are the report of possible types of errors, numerical estimates of the amount of survey error according to the particular sample design, interviewers' effects on the answers if a telephone interview was carried out, effects of nonresponse on sample estimates and information about nonrespondents, and the reliability and validity of the instruments.

Table 1 presents a summary of the types of information about survey procedures reported in a number of studies of former students with handicaps. As is evident in this table, certain types of information were provided by all or nearly all reports (e.g., response rate, description of subjects), while other types of information were provided by only a few (e.g., comparisons of respondents and nonrespondents).

Developing A School-Based Follow-up System

While most follow-up studies to date have been conducted by university people or by special evaluation projects, schools cannot rely on these avenues to obtain consistent follow-up information on former students in their programs. Increasingly, school systems will need to develop their own follow-up procedures to obtain good information on outcomes attained by their former students. This evaluation practice is important to insure that curricula remain germane to the post-school needs of students, that education personnel receive the information and training to increase their effectiveness, that information can be developed to increase retention of students, and that school systems can assess and improve necessary coordination with post-school services.

The principles and guidelines discussed in the previous section should be interpreted not just as theoretical concerns in the post-school follow-up study of students with handicaps, but rather as having practical implications for building follow-up systems in schools. A project of the Minnesota Department of Education (MDE), Interagency Office of Transition Services, in collaboration with the Minnesota University Affiliated Program (MUAP) on Developmental Disabilities, has developed a post-school follow-up system to investigate statewide the experiences of former students in special education.

The goal of constructing such a system is that local schools and programs would use it independently on an ongoing basis. The process of conducting a survey of the post-school status of students with handicaps is explained in a manual designed for teachers and other school professionals (Sinclair & Johnson, 1989). The manual contains information about sub-tasks that must be completed. For example, selection of the subject sample is comprised of the following sub-tasks: location of the list of all special education students that exited school in determined years, selection of the subjects, assignment of identification numbers, and the recording of the ID numbers.

The basic steps in Figure 1 are applicable to conducting a post-school follow-up in a local school system. The steps described in Figure 1, and discussed in greater detail earlier, are relatively easy to follow once it has been decided that follow-up will occur and sufficient resources have been assigned to the task. What is lacking in these steps, however, is a key element in ensuring successful follow-up -- the establishment of a tracking system.

Tracking procedures. Established and routine procedures are necessary for tracking students as they leave and after they have left school. In fact, most follow-up efforts are impeded by the requirement that students have to be found after they have been out of the school system for some time. While schools generally have the last known family address for each student, this is not very helpful if there is considerable mobility in the target sample or the time interval is great between exit from school and follow-up. Although generally it is possible to locate students with moderate to severe disabilities by contacting local service agencies, this is not the ideal way to proceed. A planful approach to tracking former students is much preferred, and probably necessary for students with milder disabilities who cannot be found through local service agencies. Thus, schools must maintain contact with their former students or the students' caregivers on a periodic basis. Yearly intervals are recommended so that advantage can be taken of post-office forwarding procedures.

For those attempting to follow students for the first time, the recommendation for a systematic, already-established tracking system is not helpful. In this case, it is necessary to pursue students in as many ways as possible, including mailings, contacting service agencies, and talking to students'

former teachers. It is often useful to attempt to make contacts through the student-friend network for students with milder handicaps. Students currently in school often know a student from one or two years back, and this student, in turn, may know other students. Several of the procedures to track former students in special education could be simplified if a prospective approach to following-up students would be applied. This approach should include implementation of systematic data collection procedures while students are still in school (Edgar, 1988).

An important advantage of this approach is that information needed to plan educational programs in future-referenced terms can be developed and used in developing educational plans and strategies for accessing and coordinating needed services as persons leave school programs. The U.S. Office of Special Education Programs has recognized the need for better in-school and post-school tracking systems by recently funding a number of research and development projects. One project is designing a simple baseline instrument for all youth with handicaps, and special modular assessment procedures for particular subgroups of students in special education programs (Johnson, Thurlow, Bruininks, Weatherman, & Sinclair, 1988). This effort also includes a post-school follow-up survey component based on a series of previous studies (Bruininks, Thurlow, Lewis, & Larson, 1988; Thurlow, Bruininks, & Lange, 1989; Thurlow, Bruininks, Wolman, & Steffens, 1989).

Conclusion

Survey research is an important and necessary strategy for studying questions and issues in special education. The problems such procedures are designed to address are essential, but rarely simple, to study. In special education, survey research studies are used commonly to address many important questions. Such studies, for example, are used to estimate the incidence and prevalence of handicapping conditions, measure attitudes, collect data on personnel training needs, develop information from key informants (e.g., parents and teachers) on service and policy issues, describe the number and characteristics of students in service programs, assess the post-school adjustment of former students, and many other important issues. It is evident that survey research studies are

commonly used in special education and related fields, and it is equally evident that the process of research or the use of acceptable practices has been given limited attention in the published literature.

A statement attributed to Sir Josiah Stamp, who wrote near the beginning of this century, defined rather perceptively some of the persistent dilemmas faced in conducting survey research studies on social issues. Stamp noted that:

> The government is very keen at amassing statistics. It likes to add them, subtract them, and raise them to the Nth power. But you must never forget that, in first instance, the information comes from the village watchman, who puts down what he pleases.

Stamp's perceptive comment identifies several important and obvious aspects to conducting survey research: the process starts with a clear need, proceeds with the collection of information (generally numbers and judgments) from an identified sample of people, and concludes with the analysis and interpretation of information. In our judgment, no behavioral and social research strategy is so widely used, so variably and inadequately applied, and so inconsistently reported as the process and conduct of survey research studies. These problems may be particularly acute in special education studies.

By applying acceptable practices, the results we develop from survey research studies will be easier to interpret (i.e., possess internal validity) into an integrated knowledge base, be more easily assimilated into decisions that seek to improve practices, and be more readily generalized to other populations and settings (i.e., possess external validity). The name of the game is to find the most appropriate village watchpersons, describe who they represent, and elicit information from them so that is accurate and useful.

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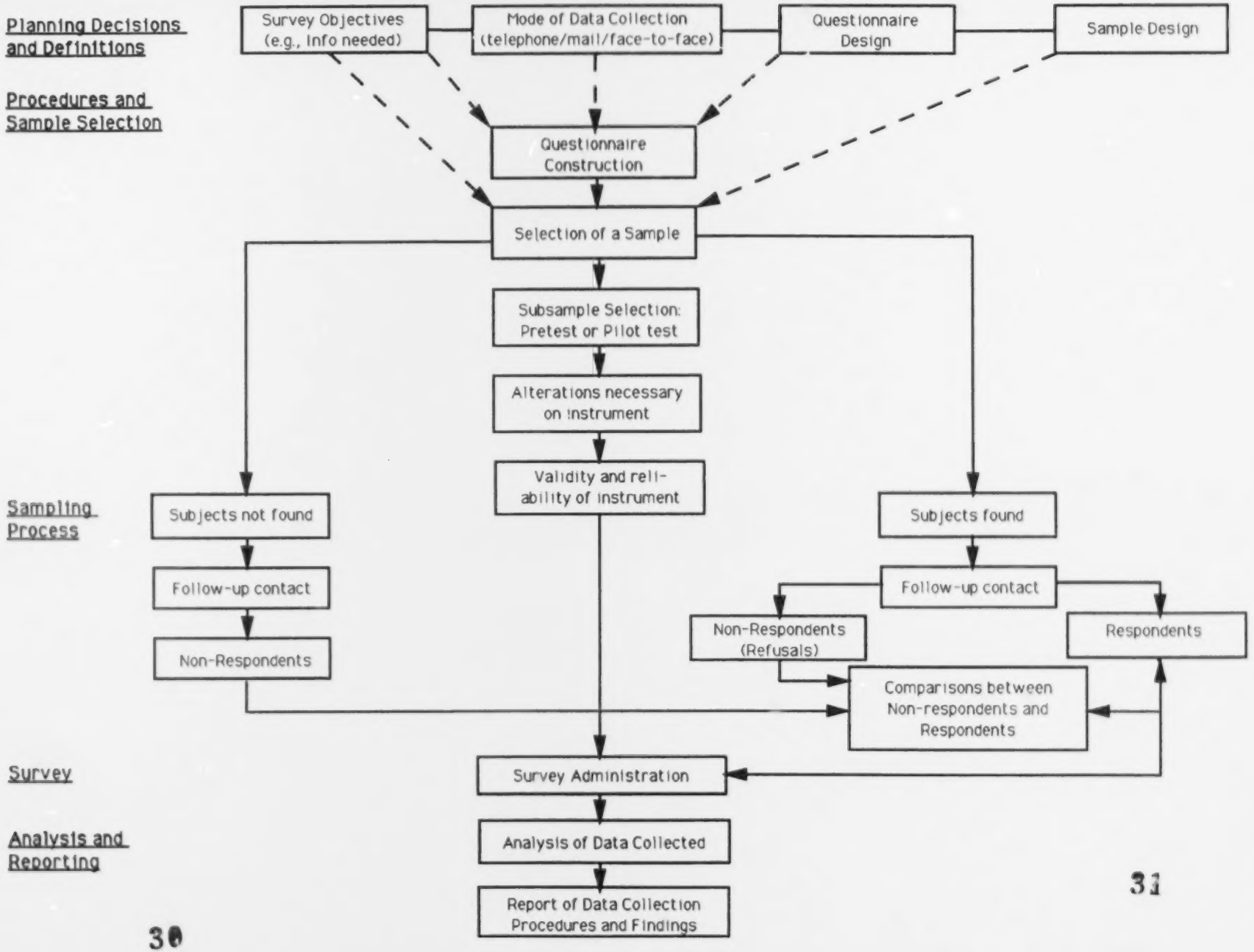
Table 1
Information Reported Concerning Follow-up Procedures

Study	Original Sample	Identified Subjects	Actual S's Responding	Response Rate	Respondents vs Non-Res	Contact Techniques	*Elapsed Time	Control group or comparison data	Type of Handicap	Mode of Data Collection
Bruininks et. al., 1988	X	X	X	66%	X	X	1-7 years	X	Ss with LD,EMR, EBD, SP	Mail questionnaire (students responded)
Edgar, 1987	X		X	51% graduates, 21% dropouts	X	X	6 months		Ss with LD/BD,MMR, Sev hand., sensory impairments	Telephone interview (Parents responded)
Fardig et. al., 1985			X						Ss with EMH, SLD, ED	Face-to-face interview (former student or family adult)
Hasazi et. al., 1985	X	X	X	65%		X	1-5 years		Ss with mild hand. in resource room & MR in special classes	Telephone interview (students or parents or others)
Levin et. al., 1985	X	X	X	65.3%	X	X	4 years	Partial	Ss w/learning disabilities	Testing and face-to-face interview (students responded)
Mithaug et. al., 1985			X				4-6 years (approx.)	Partial	Ss with MR, Percept/ communic., EBD, Phys.	Face-to-face interview (Students responded)
Thurlow, Bruininks, Lange, 1988	X	X	X	2 groups: 1) 87% 2) 90.7% 3) 90.5%		X	2 groups: 1) 7-10 yrs 2) 3-5 yrs 3) 1-2 yrs	X (group with mild handicaps)	Ss w/moderate & severe retardation	Questionnaire and face-to-face interview (group home staff & parents responded)
Thurlow, Bruininks, Wolman, & Steffens 1989	X	X	X	86.4%		X	1-5 years	(moderate vs severe)	Ss w/moderate & severe retardation	Questionnaire and face-to-face interview (group home staff & parents responded)
Thurlow, Larson, Bruininks 1989			X	55.5% (mild) 20.5% (severe)	X	X	1-8 years		Ss w/mild or severe emotional problems	Mail questionnaire and telephone interview
Wehman et. al., 1985	X		X	71%			1-6 years		Ss with moderate, severe, profound MR	Face-to-face interview (Parents responded)
White et. al., 1980		X	X	59%		X	3 months to 5 years	X	Ss w/learning disabilities	Mail surveys (Students responded)
Zigmond & Thornton, 1985	X	X	X	57%		X	6 years	X	Ss w/learning disabilities	Face-to-face interview (students responded)
Schalock et. al., 1986			X	81%		X	Up to 5 yrs (yrly collection of data)		Ss w/moderate to severe handicaps	Face-to-face interview (former student or family member)

*Elapsed time: In several cases numbers are approximate estimators of the elapsed time (data were not explicitly reported).

Figure Caption

Figure 1. Flow Chart of Survey Research Process


Planning Decisions and Definitions
Survey Objectives (e.g., info needed)
Mode of Data Collection (telephone/mail/face-to-face)
Questionnaire Design
Sample Design
Procedures and Sample Selection
Questionnaire Construction
Selection of a Sample
Subsample Selection: Pretest or Pilot test
Alterations necessary on instrument
Validity and reliability of instrument
Sampling Process
Subjects not found
Follow-up contact
Non-Respondents
Subjects found
Follow-up contact
Non-Respondents (Refusals)
Respondents
Comparisons between Non-respondents and Respondents
Survey
Survey Administration
Analysis and Reporting
Analysis of Data Collected
Report of Data Collection Procedures and Findings